

**Crosscutting Issues<sup>1</sup>**  
**CC-1 - GHG Registry<sup>2</sup>**

On May 8, 2007, Utah joined with thirty states as a charter member of The Climate Registry. Charter members include Arizona, California, Colorado, Connecticut, Delaware, Florida, Hawaii, Illinois, Kansas, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Montana, New Hampshire, New Jersey, New Mexico, New York, North Carolina, Ohio, Oregon, Pennsylvania, South Carolina, Utah, Vermont, Washington, Wisconsin, Wyoming and the Campo Kumeeyaay Nation. Two Canadian provinces, British Columbia and Manitoba, have also committed to participate.

**Benefit/Cost of Reducing CO<sub>2</sub>e:** Registries do not directly result in emissions reductions but are critical for tracking emission reductions.

**Assessment: High Priority. The sector group recommended a Bin A; however, 7 of 14 SWG members recommended Bin B because of the difficulty of gaining consensus amongst States.**

A GHG registry provides a platform for mandatory or voluntary reporting. It helps ensure consistent data reporting and accounting methodologies. Companies, governments, and others are encouraged to measure emissions. Incentives may be created for those who reduce emissions, and strategies may be developed to manage potential liabilities. A “common currency” for GHG emissions is essential in laying the foundation for carbon markets.

This is a voluntary program for Utah and provides businesses with the opportunity to get credit for early reductions of greenhouse gases. The Registry will begin to accept reporting data in January 2008.

A registry plays an important role in tracking GHG emissions and is a prerequisite for measuring and tracking any GHG goals or targets. Participating in the registry also prepares Utah for federal regulatory action on climate change and benefits early adopters of GHG reductions.

A voluntary registry will be relatively easy to roll out and can build momentum for the support of a mandatory program.<sup>3</sup> A mandatory program will likely require state legislation. A mandatory program could be phased in to allow companies to develop the expertise. The DOE program could serve as an example for a mandatory program.<sup>4</sup>

There will be some expense, but less than for other reporting/monitoring requirements. Carbon dioxide (CO<sub>2</sub>) is easier to report than other emissions, as it does not require continuous emissions monitoring; but, rather entities are required to track their fuel consumption.

We recommend that the State consider implementing mandatory reporting requirements as soon as practicable.

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<sup>1</sup> The following SWG members participated in conference calls and meetings to assess these options: Jim Holtkamp, Vicki Bennett, Kathy Van Dame, Becky Wilson (and Carol Revelt), and Sarah Wright (and Sara Baldwin).

<sup>2</sup> This includes option CC-3, 15, and 22.

<sup>3</sup> See California's program: [www.climateregistry.org](http://www.climateregistry.org)

<sup>4</sup> <http://www.eia.doe.gov/oiaf/1605/frntvrhg.html>

**CC-2 - GHG Reduction Target**

Utah recently joined the Western Climate Initiative, which commits its member states to developing a regional GHG reduction target by August, 2007.

**Benefit/cost of Reducing CO<sub>2</sub>e:**

N/A

**Assessment: High Priority. Bin B. Utah has committed to provide a State recommendation for GHG reduction by May, 2008. In developing the target, the SWG recommends that an economic assessment be done that includes costs and benefits.**

A GHG reduction target is essential for implementing and monitoring the range of options discussed across all sectors. A voluntary target may be agreed to rather easily, while a mandatory target will require significant effort. Mandatory targets will result in enforceable emission reductions. Governor Huntsman should take the lead in establishing short-term and long-term goals. Short term goals spur immediate action and should be aggressive, but achievable, based on existing technologies. Long-term goals should be based on scientific projections of the emission reductions necessary to stabilize the climate to a two degree centigrade change.

When assessing and developing GHG reduction targets, it will be important to distinguish between energy production and consumption, commonly referred to as “Load-Based” and “Source-Based”. For example, California policy of energy imports affects the GHG emissions of sources in other states. Montana has passed legislation with a similar proposal but is a net exporter of energy. Wyoming, Utah, and New Mexico are net exporters of energy.

Many U.S. states and countries have decided that stabilizing the climate at no more than a two degree centigrade increase requires GHG emission cuts of 60-80 percent from 1990 levels. The following Western states have adopted GHG emissions reduction goals, to date by executive order:

Arizona: 2000 levels by 2020; 50 percent below 2000 levels by 2040<sup>5</sup>

California: 2000 levels by 2010; 1990 levels by 2020; 80 percent below 1990 levels by 2050<sup>6</sup>

Oregon: 1990 levels by 2010; 10 percent below by 2020; 75 percent by 2050<sup>7</sup>

New Mexico: 2000 levels by 2012; 10 percent below by 2020; 75 percent below 2050

Washington: 1990 levels by 2020; 70-80 percent below 1990 levels by 2050<sup>8</sup>

In some cases, these goals have been codified (or amended and codified) by state legislatures. Goals adopted or pending adoption by legislation includes:

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<sup>5</sup> Arizona Climate Change Advisory Group, “Climate Change Action Plan,” <http://www.azclimatechange.us/ewebeditpro/items/O40F9347.pdf>, at 7

<sup>6</sup> California’s climate reduction targets are found in state law AB 32. The 2050 Goal is provided for by Executive Order.

<sup>7</sup> Oregon’s targets enacted in 2004 were in HB 3543.

<sup>8</sup> Washington’s targets can be found in SB 6004. Under the Northeast’s Regional Greenhouse Gas Initiative (RGGI), governors of seven states have committed to stabilizing emissions at current levels from 2009-15 and then reducing them by 10 percent by 2019. <http://www.rggi.org/>.

California (adopted by AB32): 1990 levels by 2020; to be determined, cap beginning in 2012 (§38562)

Oregon (proposed HB3543): Arrest growth by 2010; 10 percent below 1990 levels by 2020; and 75 percent below 1990 levels by 2050.

Washington (adopted SB6001): 1990 levels by 2020; 25 percent below 1990 levels by 2035; and 50 percent below 1990 levels by 2050

Colorado is considering setting separate targets for state emissions, creating a separate body to oversee climate policy, and requiring local governments to develop GHG reduction plans and targets. Montana is considering statewide GHG reduction targets and separate target for state emissions.

At least 7 other states have set GHG targets; they typically call for a 10 percent cut from 1990 levels by 2020 and a 60-80 percent reduction by 2050. The European Union has adopted a 20 percent reduction goal by 2020 (30 percent reduction if China and other large emitters accept a similar goal), and some European nations have set 50-80 percent reduction goals by 2050.<sup>9</sup>

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<sup>9</sup> Europa Press Release, Jan 10, 2007, "Questions and Answers on the Commission Communication Limiting Global Climate Change to 2°C, <http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/07/17&format=HTML&aged=0&language=EN&guiLanguage=en>; <http://www.theclimategroup.org/index.php?pid=422>; <http://thewatt.com/article1270.html>; and *Energy Bulletin*, 2005, <http://www.energybulletin.net/11759.html>; and The IPCC Working Group II Report, *Climate Change 2007: Impacts, Adaptation and Vulnerability*. URL: <http://www.ipcc-wg2.org/>.

**CC-3 - Public Education and Outreach<sup>10</sup>****Benefit/Cost of Reducing CO<sub>2</sub>e:**

The Utah Energy Efficiency Strategy shows Public Education, with respect to Energy Efficiency, to be extremely cost effective, yielding a \$/CO<sub>2</sub>e ton of approximately -\$70.

**Assessment: High Priority. Bin A.**

Public education and outreach programs can take a variety of forms. Programs should educate the entire public, not just public school students. A combination of state and private funding is needed to implement a successful, statewide education campaign. Partnerships could be formed with other entities, such as utilities and large companies.

Educating the general public, along with businesses, industries, and K-12 grades, will help yield significant reductions in greenhouse gas emissions. Resources invested in public education and outreach can yield a high return, as it can spur people to action, alter habits and influence behavior with respect to energy, energy use, and reducing Utah's carbon emissions. For example, preliminary estimates from Utah's Energy Efficiency Strategy Report show that an effective public education and outreach campaign on energy efficiency has the potential to save 300-400,000 tons of carbon dioxide per year in 2020, while yielding net energy savings of approximately \$300 million from 2006-2020.<sup>11</sup>

Arizona and New Mexico identify specific audiences to be targeted, including policymakers, youth, community leaders, and the general public. New Mexico also targets industrial and economic sectors. Colorado is considering establishing an education and outreach committee and outreach coordinator position, holding regular briefings to promote implementation, and adding climate to education performance standards for schools. The Oregon Governor's Advisory Council on Global Warming is developing an education program.

The Cooperative Institute for Research in Environmental Sciences (CIRES) at the University of Colorado, Boulder works with the Office of Oceanic and Atmospheric Research of the National Oceanic and Atmospheric Administration to create programs for K-12 school districts, teachers and students, undergraduates, and other community groups. CIRES has established a K-12 Outreach Program that combines science with innovative teaching practices. Other ongoing projects include classroom and prospective teacher professional development, volunteer opportunities for scientists, education components for research projects, district partnerships, research mentors for high school students and undergraduates, and collections of digital resources for geo-science education project evaluation and for climate change education.<sup>12</sup>

Public education and outreach programs are also discussed in the RCI section of the DEQ Climate Change Working Group Report.<sup>13</sup>

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<sup>10</sup> This includes option CC-7, 16, 23, 24, and 25.

<sup>11</sup> Gellar, H., S. Baldwin, P. Case, K. Emerson, T. Langer and S. Wright. *Embargoed Draft Report of Utah Energy Efficiency Strategy: Policy Options*. 21 May 2007.

<sup>12</sup> See <http://cires.colorado.edu/education/k12/>

<sup>13</sup> See RCI-14, RCI-27, and RCI-33.

## CC-4 - Research and Development into Low/No Carbon Energy Strategies<sup>14</sup>

### **Benefit/Cost of Reducing CO<sub>2</sub>e:**

This option does not yield immediate GHG reductions, but has potential long-term benefits and emission reductions.

### **Assessment: High Priority. Bin A.**

Utah should increase support and funding for R&D for renewable energy, energy efficiency, and other clean, low-carbon energy technologies. We should build on research done at Utah universities and the USTAR program but should not duplicate research already being conducted. The University of Utah has a leading research program in coal technology and clean energy from coals.

Colorado is considering promoting climate research and technology development at state universities, and the Oregon state university system was asked to develop strategic and targeted research, development, and demonstration programs for GHG reduction technologies.

California's GHG procurement policy has prompted California-Wyoming research on clean coal technologies. This option could include nuclear power.

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<sup>14</sup> Research and development options are also addressed in the RCI and energy supply sectors; the focus here would be on GHGs not covered in these other categories.

**CC-5 - Climate Adaptation Strategies and Policies**

**Benefit/Cost of Reducing CO<sub>2</sub>e:**

N/A

**Assessment: High Priority. Bin B.**

Developing and implementing an adaptation strategy will require significant financial and other resources and will require the involvement of numerous stakeholders. This option could include adaptations to address the consequences of reduced snow pack, increased precipitation, more intense droughts, and drier soils; the spread of new diseases affecting humans and other forms of life; shifts in vegetation patterns and distributions and other impacts on ecosystems and on agriculture; and changes in behaviors, habits, and decisions. Utah should focus in particular on the impacts of climate change on water, drought, and reduced snow pack. It is important to bring agencies together to address this. Utah universities could possibly focus research into this area.

Arizona is developing a comprehensive state adaptation strategy and gives priority to adaptation measures that can also help mitigate GHG emissions.

**CC-6 - Regional/State Cap and Trade Program, Carbon Tax, or Hybrid<sup>15</sup>****Benefit/Cost of Reducing CO<sub>2</sub>e:**

The cost and benefits vary with the type of mechanism and are dependent on the scope of policy.

**Assessment: High Priority was recommended by the sector group. However, 4 of 14 SWG members recommended a Medium Priority. Bin B.**

Utah is participating in the development of a regional, market-based strategy, in conjunction with the Western Climate Initiative.

*Cap and Trade.* Cap and trade programs establish a cap on total emissions or an emissions reduction goal, specify caps for major sources and allocate emissions allowances to those sources, and then require sources to demonstrate each year that their actual emissions do not exceed their allowances. Sources that emit less than their allowances can sell excess allowances to other sources that exceed their allowances. Cap and trade programs face considerable challenges, such as how to establish the overall cap, how to allocate allowances to major sources, whether to give away or sell/auction allowances, how to monitor emissions and ensure compliance, and how to certify trades. U.S. EPA's acid rain program established under the 1990 Clean Air Act provides valuable lessons for the design of cap and trade programs.<sup>16</sup> The European Union's Emissions Trading System, established in 2005 to help prepare EU countries for complying with the Kyoto Protocol, is the world's largest GHG trading program.<sup>17</sup>

As indicated above, in May 2007, Utah became a member state of the Western Climate Initiative (WCI), joining Washington, Oregon, California, Arizona, and New Mexico and two Canadian Provinces. Members of the WCI have agreed to develop, within six months of the original charter date (Feb 2007), a regional GHG reduction target. By August 2008, The WCI plans to develop the design for a regional, market-based mechanism to achieve the target.

*CO<sub>2</sub> Tax.* A carbon tax is a tax placed on the consumption or production of carbon in any form. Proposals typically call for a tax based on fuel use or emissions or some other measure, such as the volume of smokestack emissions from power plants or the fossil fuel content of motor vehicle fuel. Carbon taxes are sometimes championed as an alternative to cap-and-trade programs, because they are simpler to design and implement, can be put in place more quickly, are easier to understand and consequently more likely to be accepted, more likely to lead to predictability in energy prices, can address more sectors of the economy, and create a revenue stream that can be used to reduce other taxes or fund energy efficiency and renewables. Critics point to the political difficulties associated with raising taxes, the experience with cap-and-trade programs like acid rain that have been widely viewed as successful, and the advantage of having a cap that, if accurately set, can ensure that

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<sup>15</sup> Includes options CC-17, 18, 19, and 20.

<sup>16</sup> <http://www.epa.gov/airmarkets/cap-trade/index.html>

<sup>17</sup> The Protocol requires that the EU as a whole reduce its GHG emissions from 1990 levels by 8 percent during the 2008-12 compliance period. The first phase of the program operates from 2005 through 2007. The core of the system is national allocation plans (NAPs), plans that set out each Member State's allocation of CO<sub>2</sub> emission allowances. NAPs set both the total of emission allocations available in each member state and the allocation made to each installation covered by the scheme; see <http://ec.europa.eu/environment/climat/emission.htm>.

environmental protection goals are achieved. Advocates of a carbon tax have created an organization to promote the idea.<sup>18</sup> A carbon tax may be best pursued nationally or even internationally, but there has been some discussion of state and local governments embracing the idea. In November, 2006, for example, residents of Boulder, Colorado voted to approve what is apparently the nation's first carbon tax, based on the number of kilowatt-hours of electricity consumers use; the tax is estimated to add about \$16/year to the average homeowner's bill and \$46/year for businesses. Revenues, which are expected to reach \$6.7 million by 2012, will be used to fund the city's climate action plan that includes energy efficiency, renewable sources, and reduced vehicle miles traveled.<sup>19</sup>

*GHG Offset/mitigation requirements for new power plants.* A carbon offset requires a source to offset its carbon emissions by avoiding an equivalent amount of emissions elsewhere (either CO<sub>2</sub> or other GHGs) or by sequestering an equivalent amount of carbon. Companies that seek to be carbon neutral, for example, may be unable to completely eliminate emissions and choose to purchase offsets equal to whatever emissions they are unable to eliminate.<sup>20</sup> Under a 1997 law, Oregon requires new power plants to offset some of their CO<sub>2</sub> emissions; plants can meet that goal by making payments to the Climate Trust, a Portland NGO, which invests in greenhouse gas projects that avoid, displace, or sequester CO<sub>2</sub> emissions. Plants are required to ensure their net emissions remain 17 percent below the most efficient base-load gas plant operating in the US.<sup>21</sup>

*Recommendation.* We recommend that the state continue to work on a market-based strategy including considering the implications of regional Cap and Trade, carbon tax, product excise tax, and hybrid approaches. There should be an economic analysis of the costs and benefits associated with each of these policy options. A cap and trade program and a carbon tax are not mutually exclusive, and both could be implemented as part of an effort to reduce GHG emissions and achieve a particular target. They are discussed together here because policy discussions often address them at the same time. There are several issues to be explored, such as whether entities should be required to obtain independent verification of emissions. GHG trading programs will be more effective with more entities involved.

As a result of the Supreme Court's decision in April, CO<sub>2</sub> may be designated as a criteria pollutant, which may lead the EPA to regulate GHG from vehicles. Some states are supportive of said regulation. A federal policy on this issue may preempt state regulation; as such any decision regarding this matter should take into consideration current federal proposals (see CC-8).

More information on the matter of vehicle CO<sub>2</sub> emissions can be found in the Transportation/Land Use sector recommendations and the Utah Energy Efficiency Strategy Report.

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<sup>18</sup> See <http://www.carbontax.org/>

<sup>19</sup> Katie Kelley, "City Approves 'Carbon Tax' In Effort to Reduce Gas Emissions," *The New York Times* (November 18, 2006).

<sup>20</sup> Climate Biz, [http://www.climatebiz.com/sections/background\\_detail.cfm?UseKeyword=Carbon%20Offsets](http://www.climatebiz.com/sections/background_detail.cfm?UseKeyword=Carbon%20Offsets)

<sup>21</sup> Oregon Carbon Dioxide Emission Standards For New Energy Facilities, <http://www.oregon.gov/ENERGY/SITING/docs/ccnewst.pdf>.



**CC-7 - Guidelines for Climate Policy (in general);  
Coordination with Other Policies**

**Benefit/Cost of Reducing CO<sub>2</sub>e:**

N/A

**Assessment: High Priority. Bin A.**

Climate policies should be coordinated with other policies, including air and water policy, to ensure the policies are effective and do not exacerbate other problems.<sup>22</sup> There are examples of the need for coordination, such as the UK moving to diesels to reduce carbon emissions which has increased particulate pollution.

Montana is considering requiring GHG assessments as part of state-mandated environmental impact statements.

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<sup>22</sup> Includes options CC-11, CC-12, CC-13, and CC-14.

**CC-8 - Evaluate Existing Climate Proposals at the Regional and Federal Levels**

**Benefit/Cost of Reducing CO<sub>2</sub>e:**

N/A

**Assessment: High Priority. Bin A.**

In planning, implementing, and updating Utah's climate change policies & options, it is desirable to monitor other states, regional, federal and international activities, so we can adopt new ideas that suit Utah's needs, as other entities create them.

A summary report of federal and regional climate change bills and proposals, outlining the potential impact each would have on Utah businesses and residents, may be helpful going forward.